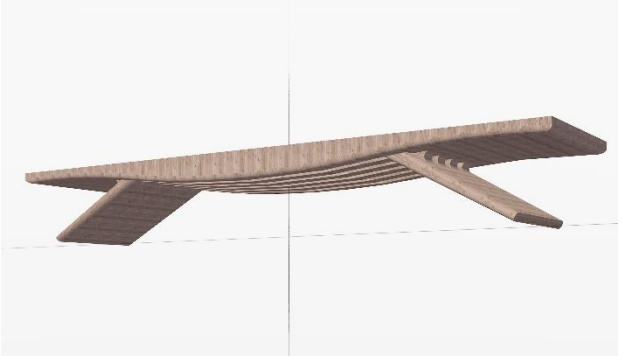
Additive Manufacturing of Wooden Components

TECHNISCHE UNIVERSITÄT DARMSTADT

System for additive manufacturing of wooden components while retaining the natural fibre structure



Status quo

Conventional woodworking methods only allow a limited shaping of the final element. Additive manufacturing processes for wood may overcome this disadvantage, but with their use of wood flour or wood shavings from the raw material the natural wood fibre structure and also the advantageous mechanical properties of the wood are lost.

Our technology: Cutting, layering and jointing of endless veneer

The new manufacturing process is based on the so-called Laminated Object Manufacturing (LOM/LLM) process and uses endless veneer as the starting material. In the automated layer-by-layer manufacturing process, large-format wooden elements can be produced this way.

Benefits

- New achievable geometries / shapes compared to conventional wood production while retaining the natural fibre structure
- High degree of automation in production
- Large-sized components through the use of endless veneer (rotary cut veneer)

Current stage of development

Technology-Readiness-Level (TRL): Level 2.

Prototype tests in small series are pursued. Proof of concept of the system in real size is being planned.

Application possibilities

The process is primarily developed for the woodworking construction industry, but is also suitable on a smaller scale, for example for furniture production or architectural model making.

Commercialization opportunities

For the implementation of the technology, we are looking for interested companies who would like to extend their product portfolio or open up new business fields. There are various possibilities for cooperation between the industrial partner and TU Darmstadt: from an exchange with the know-how carriers of the technology up to a close cooperation in case of further development needs. The technology is protected by intellectual property rights and can be used by the industry partner after a sale or licensing agreement.

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